1240/5(7030)

WRITTEN QUESTION TO THE MINISTER FOR TRANSPORT AND TECHNICAL SERVICES BY DEPUTY M.R. HIGGINS OF ST. HELIER
ANSWER TO BE TABLED ON TUESDAY 17th JULY 2012

Question

(a) How much of the £99,414,332 paid out to date to contractors under the Energy for Waste (EFW) contract has been paid in Euros and what is the final cost of failing to hedge this sum?

(b) How much of the £5,482,715 to be paid to the contractor once the performance and availability tests have been completed is to be paid in Euros?

(c) What are the performance and availability standards/benchmarks laid down in the EFW contract?

(d) Have the contractors successfully met the aforementioned standards/benchmarks to date?

(e) Using the table contained within his response to question 6956 on 26th June 2012, would the Minister advise–

(i) the amount of electricity consumed by the EFW plant for its own consumption/operations on a monthly basis;
(ii) the value in pounds sterling earned by the plant for electricity sold to the JEC on a monthly basis;
(iii) the different types and amount of ash produced through incineration on a monthly basis?

(f) Have any problems occurred at any time over the dual use of the JEC chimney?

(g) Would the Minister detail what problems, if any, have been experienced to date with the operation of the EfW plant?

Answer

(a) The £99,414,332 comprises payments of £33,996,749 and €72,887,170.

With regard to the cost of initially failing to hedge the euro, the foreign currency financing is a matter for the Minister for Treasury and Resources and the Minister suggests that this question is directed to the Minister for Treasury and Resources.

(b) The £5,482,715 comprises of £1,826,853 and €4,073,300.

(c) The performance criteria for the plant are somewhat complicated, however to summarise, the plant is designed to process up to 105,000 tonnes of municipal waste per year at a Nett

Calorific Value of 9.2 MJ/kg. The plant is designed to operate with wastes with a Nett Calorific Value of between 7.5 MJ/kg and 14 MJ/kg.

The plant availability test stipulates that the plant must be available to operate for 7,450 hours per year. This will be calculated from the 365 days following the issue of the Performance Test Certificate.

A summary of the measured performance indicators specified in the contract of the 14th November 2008 is included in appendix 1.

(d) The performance tests were completed on Monday 2nd July 2012. The data from these tests is presently being analysed and the results will be reviewed and discussed with CSBC (Jersey) Limited. As the results of these tests are subject to the contract agreement the Minister is unable to make further comment on this matter until the results have been agreed by all parties.

(e) (i) the amount of electricity consumed by the EFW plant for its own consumption/operations on a monthly basis;
(ii) the value in pounds sterling earned by the plant for electricity sold to the JEC on a monthly basis;
(iii) the different types and amount of ash produced through incineration on a monthly basis?

	Waste Processed	**Exported Electricity**	**EFW Site Electricity Usage**	**Bottom Ash**	**FGT Residue**
	Tonnes	**KWH**	**KWH**	**Tonnes**	**Tonnes**
Jan-11	994	0	*666,666	39	0
Feb-11	5,027	0	*666,666*	747	275
Mar-11	3,677	919,680	*666,666*	698	138
Apr-11	5,896	1,313,116	*794,512*	1,134	231
May-11	4,674	1,577,308	*945,072*	837	255
Jun-11	5,030	2,420,847	*945,072*	981	206
Jul-11	5,280	2,337,974	*945,072*	969	152
Aug-11	8,850	3,768,930	*945,072*	2,188	275
Sep-11	7,089	3,569,562	1,000,888	1,997	305
Oct-11	6,773	3,982,166	1,052,963	1,440	248
Nov-11	7,328	4,206,740	871,310	1,795	295
Dec-11	2,268	836,962	616,807	505	72
Jan-12	7,631	4,338,835	938,472	1,719	255
Feb-12	5,528	3,169,699	767,567	1,155	213
Mar-12	3,199	2,083,491	599,079	571	144
Apr-12	6,053	3,166,506	837,704	963	139
May-12	4,135	2,177,786	722,872	1,134	136
Total to end of May	**89,432**	**39,869,603**	**13,982,462**	**18,872**	**3,337**

*The figures in grey are from the commissioning period and are estimated figures.

With regard to (ii) "*the value in pounds sterling earned by the plant for electricity sold to the JEC on a monthly basis*".

The Transport and Technical Services Department has contacted Jersey Electricity plc and they have confirmed the sentiments expressed in the Minister's original answer to question 6596 provided in June. The value of electricity earned by the plant for electricity sold to Jersey Electricity plc is based on the European power markets and is reviewed on an annual basis. The details of the agreement are commercially sensitive and public disclosure would result in a breach of the confidentiality clause of the contractual agreement between the Jersey Electricity Company and the Minister for Transport and Technical Services and The Minister for Treasury and Resources.

(f) There have been no problems with the dual use of the JEC chimney.

(g) The plant has and is operating successfully. There have been minor problems which have occurred during the commissioning and subsequent handover period, however this is quite normal for a plant of this size and complexity and the problems are being resolved by the contractor CSBC (Jersey) Limited and the Transport and Technical Services staff. In general terms if problems are caused as a result of design or construction defects then CSBC (Jersey) Limited is contractually obliged to resolve the problems at their cost.

Appendix 1

PERFORMANCE INDICATOR	Units	Guaranteed Performance Level	Rejection Level
Boiler/Grate – Values are for each thermal treatment and boiler stream unless otherwise specified. Test requirements are specified in Schedule 16, unless otherwise stated.			
1) Flue gas temperature maintained for at least two seconds after the last injection of combustion air and in the presence of sufficient oxygen to demonstrate WID compliance for all points within the firing diagram. To be demonstrated at the design stage by CFD modelling and during the Performance Tests to the satisfaction of the Project Manager	℃	850	<850
2) Maximum unburnt matter in combined bottom ash and boiler ash, referred to dry weight of the material as specified in the Waste Incineration Directive EU/2000/76.			
a) as Total Organic carbon (excluding elemental carbon), or	% w/w	3.0	>3.0
b) as Loss On Ignition	% w/w	5.0	>5.0
The guarantee is met if one criterion is met.			
Flue Gas Treatment Plant – Unless otherwise stated, the Guaranteed Performance Levels below shall be achieved with each boilers firing at 100% MCR on Design Waste.			
3) Maximum emission concentrations of pollutants at the stack as specified in the Waste Incineration Directive (EU/2000/76) under the full range of firing conditions shown on the firing diagram.		≤ any limit specified in WID	>any limit specified in WID
Noise			
4) Compliance with the external noise limits prescribed in the Planning Conditions.		compliance	non-compliance

PERFORMANCE INDICATOR	Units	Guaranteed Performance Level
Boiler/Grate – Values are for all thermal treatment and boiler streams in operation at 100% MCR unless otherwise specified.		
1) Guaranteed Waste throughput at a net calorific value of between 7.5 and 8.5 MJ/kg (averaged over a 4 hour period) (100% waste throughput line on Firing Diagram)	t/h	16.1
2) Guaranteed heat release from the combustion of waste at a net calorific value between 9.2 and 14.0 MJ/kg (100% thermal input line on the Firing Diagram) at the reference conditions given in 3)i) to 3)ix) below.	MW_t	38.4
3) Guaranteed steam flow rate at turbine inlet at the reference condition given in i) to viii) below, 100% MCR (Steam flow to the vacuum ejectors included; turbine in operation)[1]		
- 100 to 4,000 hours after manual boiler clean	t/h	47.5
- 8,000 hours after manual boiler cleaning	t/h	47.1
i) Guaranteed Steam temperature at turbine inlet	°C	397 ± 5
ii) Guaranteed Steam pressure at turbine inlet	bar-a	43 ± 1
Reference design conditions (items iii. to ix. not guarantees)		
iii) Feedwater temperature at economiser inlet	°C	130
iv) Primary air preheat temperature	°C	150
v) Secondary air preheat temperature	°C	150
vi) External ambient air temperature	°C	10
vii) External ambient air humidity	%	80
viii) Air preheater heat input from turbine extraction steam	kW	1740
ix) Flue Gas temperature at exit of boiler economiser / entrance to final economiser	°C	180
Flue Gas Treatment Plant – The Guaranteed Performance Levels are for all streams operating at 100% MCR [1] with raw gas emission concentrations according to section 5.2.2 of Part B205		
4) Maximum consumption of urea prills	kg/h	35
5) Maximum consumption of hydrated lime (95%) per stream	kg/h	185
6) Maximum consumption of activated carbon	kg/h	10.7
7) Maximum APC Residue production	kg/h	550
8) Maximum consumption of towns water for flue gas treatment without SNCR		
- 100 to 4,000 hours after manual boiler clean	kg/h	0
- 8,000 hours after manual boiler cleaning	kg/h	0

[1] 100% MCR at Design Point 1 per Part 201 of the specification and subject to the variation in NCV of waste away from Design point

PERFORMANCE INDICATOR	Units	Guaranteed Performance Level
Bulky Waste Facility		
9) Guaranteed Bulky Waste throughput totalled over an 8 hour operating day.	t/d	200
Steam Turbine Generation Set - Values are for the single turbine with combined steam supply from any combination of operating boilers. Test requirements and procedures are specified in Schedule 16.		
10) Gross power production measured at the generator terminals in fully condensing mode at 100% MCR steam flow and reference conditions after 100 to 4000 operating hours after manual boiler cleaning:		
- two boilers operating at 100% MCR	MWe	10.240
- one boiler operating at 100% MCR	MWe	4.400
with the following guaranteed steam conditions at the turbine inlet stop valve:		
Steam flow:		
- two boilers operating at 100% MCR	kg/h	47,500
- one boiler operating at 100% MCR	kg/h	23,200
Steam temperature at turbine inlet	°C	397 ± 5
Steam pressure at turbine inlet	bar-a	43 ± 1
Ambient sea water temperature (condenser)	°C	12
12) **Auxiliary power consumption of EfW plant** with all units operating at 100% MCR load and all normal equipment in operation. Without Step-up transformer losses and without Bulky Waste Facility of sewage sludge system in operation. (Hourly averaged value)	kW	1275
13) **Auxiliary power consumption of Bulky Waste Facility** averaged over 8 hours daytime operation processing 200 tonnes of material (Hourly averaged value)	kW	175
14) **Availability** – the Available hours of the complete Plant in the first year of operation after Take Over	h	7,450
15) Guaranteed hourly vehicle throughput for the BWF (Tested in accordance with the draft procedure set out in Appendix B of this schedule)		45

PERFORMANCE INDICATOR	Units	Guaranteed Performance Level	Action Limit
Waste Feed Crane			
1) Minimum continuous waste feeding rate of single waste feed crane feeding all streams operating at MCR with the bunker nearly empty, expressed as a percentage of the Guaranteed Waste Throughput at the 100% waste throughput line on the firing diagram.	%	200%	≤190%
Boiler/Grate – Values are for each incinerator and boiler stream unless otherwise specified. Test requirements are specified in Schedule 16 unless otherwise stated.			
2) Maximum flue gas temperature into superheater convective pass (average for any horizontal traverse) at 100% MCR.	°C	640°C	650°C
3) The maximum average flue gas temperature into superheater convective pass (measured at nine equi-spaced points in the duct according to preliminary procedure in Appendix A of this Schedule).	°C	625°C	640°C
4) Maximum moisture content in bottom ash delivered to ash containers	% w/w	20%	21%
5) Maximum concentration of ammonia corrected to flue gas reference under all firing conditions on the firing diagram.	mg/m^3	10	>10
6) Boiler and Grate Continuous Operation – Minimum number of operating hours of a stream operating at 100% MCR between outages for manual cleaning or maintenance (excluding 1 short short down period for inspection purposes).	hours	8,000	<8,000
7) Maximum speed of ID fan expressed as percentage of the synchronous speed under the following reference operating conditions:	%	84%	≥90%
a) Boiler firing rate as percentage of Guaranteed Heat Release	%	110	
b) Oxygen content at boiler exit as percentage dry gas	% v/v dry	8.7	
c) FGT in continuous operation with all compartments on line and normal reverse jet cleaning as determined by differential pressure control.			
d) Boiler operating hours 100-4000 after manual cleaning			
8) Minimum live steam temperature with at least 1,000 boiler operating hours since last manual boiler cleaning. - between 90% and 102% of MCR thermal load - between 60% and 90% of MCR thermal load	 °C °C	 400 ± 5 From 360 to 400 ± 5	

PERFORMANCE INDICATOR	Units	Guaranteed Performance Level	Action Limit
9) Flue Gas Temperature at economiser exit / entrance to final economiser			
a) At 100% MCR load, 100 to 4,000 boiler operating hours after manual cleaning	°C	200	210
b) Maximum temperature, 8000 operating hours after manual boiler cleaning.	°C	200	210
c) At 70% MCR load after 1,000 boiler operating hours.	°C	160	150
d) Minimum at start of run, boiler clean, maximum 100 operating hours after manual boiler cleaning.	°C	150	140
10) **Flue Gas Temperature at entrance to Stack Flues**	°C	190°C	180°C
Steam Turbine Generation Set			
11) Steam swallowing capacity of steam turbine	t/h	105% of all boilers at 100% MCR steam flow	≤105%
Start-up Time - Test requirements are specified in Schedule 16			
12) Maximum time to start one boiler and associated systems from cold to full load (without unacceptable thermal stress):	hours	10	≥16h 30min
Ash Handling Plant			
13) The grade of metal separation achieved by the magnetic separator.	% (wt)	80	90 (% of the guaranteed Performance Level value)
Bulky Waste Facility			
14) The Maximum Bulky Waste Throughput	kg/hr	25 000	90%
15) Minimum throughput of a Shredder	kg/hr	30 000	90%
16) The capacity of the conveying equipment at Maximum Bulky Waste Throughput	%	130	90%
17) The grade of metal separation achieved by the magnetic separator	%	80	90 (% of the guaranteed Performance Level value)
Noise - Test requirements are specified in Schedule 16.			
18) Maximum noise emissions			

19)	The maximum noise level from any one individual item of equipment measured at a distance of 1 m in any direction from the noise source with the exception of the following items of equipment:	dB(A)	80	80

	PERFORMANCE INDICATOR	Units	Guaranteed Performance Level	Action Limit
	Steam turbine	dB(A)	100	100
	Steam turbine bypass valves	dB(A)	100	100
	Mechanical rapping equipment	dB(A)	95	95
	Bag filter cleaning system	dB(A)	100	100
	Boiler feedwater pumps	dB(A)	90	90
	Bottom ash conveyor.	dB(A)	90	90
	Fire water pump	dB(A)	90	90
b)	The maximum noise level in general working areas during operation of the Plant.	dB(A)	85	85
c)	The maximum noise level in following separate rooms / enclosures in which hearing protection is mandatory:			
	Turbine HallFeed water pump room	dB(A)	100	<100
		dB(A)	90	<90
Vehicle Throughput				
17)	Maximum hourly vehicle throughput for the weighbridge		80	< 80
18)	Guaranteed hourly vehicle throughput for the EfW		30	< 30